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USWEST

Glenn Brown
Executive Director-
Public Policy

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JUN - 5 1997

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

June 5, 1997

EX PARTE
Mr. William F. Caton
Acting Secretary
Federal Communications Commission
1919 M Street, NW
Room 222
Washington, DC 20554

RE: CC Docket 96-45

On June 4, 1997 Warren Hannah of Sprint and Peter Copeland and the undersigned from U S WEST met with Ken Moran, Chief of the Accounting and Audits Division, to present and overview of the Benchmark Cost Proxy Model (BCPM). The attached charts were used during our presentation.

Since this meeting occured late in the day, this letter is being filed the following business day.

In accordance with 47 C.F.R. § 1.1206(a)(1) of Commission's rules, the original of this letter and one copy are being filed with your office. Acknowledgment and date of receipt are requested. A duplicate of this letter is included for this purpose.

Sincerely,

Glenn H Brown

Attachment

cc: Ken Moran

No. of Copies rec'd 0+1
List A B C D E

BCPM REVIEW

JUNE 4, 1997

Purpose of the Model

- Develop Costs Below Study Area Level
- Allow Targeting of Support to Small Geographic Areas (e.g., CBGs)
- Develop Cost Estimates for Basic Service
  - Single Line Service
  - Efficient Design
  - State-of-the-Art Technology
- Allow Evaluation of Multiple Proposals for High-Cost Support Targeting
- Provide Capability for the Analysis of Unbundled Network Element Costs

Genesis of the BCPM

- U S WEST Initial Model (1994)
  - Distance and Density Only
- Benchmark Cost Model (1995)
  - U S WEST, Sprint, MCI & NYNEX
  - Additional Cost Factors (e.g., Soil Type, Bedrock, etc.)
  - Dynamic Network Design Algorithm
  - <u>Relative</u> Cost of Serving High Cost Areas
  - Did Not Account for Urban Cost Structures
- Benchmark Cost Model 2 (1996)
  - Includes all Elements of Providing Telephone Service
  - More Accurate Customer Location in Sparse Rural Areas

Genesis of the BCPM

(Continued)

- Benchmark Cost Proxy Model (early 1997)
  - U S WEST, Sprint, Pacific Bell
  - Combine Best Aspects of BCM2 and CPM
  - Enhanced Capital Cost Module
  - More Desegregated Cost Categories
  - Flexibility for Smaller Company Inputs
  - Model Logic and Equations Open to View
  - Expanded User Controlled Input and Report Levels
- BCPM2 (later 1997)
  - More Granular Customer Location Algorithm
  - Accurate and Documented Cost Inputs

Benchmark Cost Proxy Model 2

The Myth of Growing "Benchmark" Fund Size

- BCM = $7.5B (?)
- BCM2 = $15B (?)
- BCPM = $23B (?)
- However BCM Did Not Include All Costs
- BCPM Results Used Guidelines in Joint Board Report to Reflect Costs of "New Market Entrant" and included single line business
- BCPM = $15B When Run With Sprint and Joint Board Staff Data

Benchmark Cost Proxy Model 2

BCPM vs. CPM & BCM2

(SOUTHWESTERN BELL - TEXAS DATA)

	ITEM	CPM	BCM2	BCPM
1	**INVESTMENT**			
2	**TOTAL**	**$1,247**	**$954**	**$1,258**
3	LOOP	1,062	845	940
4	SWITCH	185	109	236
5				
6	**MONTHLY COSTS**			
7	**TOTAL**	**$31.58**	**$27.26**	**$31.14**
8	OPERATING EXPENSES		15.11	11.34
9	CAPITAL COSTS		12.15	19.79
10				
11	**CORRECTIONS TO BCM2**			
12	CORRECT DOUBLE DISCOUNTING		$1.50	
13	ADD UNCOLLECTABLES		0.20	
14	CORRECT SWITCH FORMULA		0.30	
15	ADD GENERAL SUPPORT ASSETS		1.30	
16	CORRECT DROP COSTS		1.00	
17	**NOTABLE BCPM CHANGES**			
18	FORWARD LOOKING CAPITAL COSTS		2.86	
19	FORWARD LOOKING OPERATING EXPENSES		(3.77)	
20	ASSOCIATION TO CLOSEST WIRE CENTER		0.50	
21	INCLUSION OF MULTI-UNIT HOUSING		(1.10)	
22	SWITCH, OSP AND OTHER DATA CHANGES		1.09	

WHAT HAVE WE LEARNED?

- THE PLATFORM IS IMPORTANT
  - THE NETWORK MUST BE BASED ON SOUND ENGINEERING PRINCIPLES
  - THE COMPUTER CODE MUST BE VISIBLE AND ACCOMPLISH ITS STATED FUNCTIONS
  - THE NETWORK MUST BE CAPABLE OF DELIVERING QUALITY SERVICE
- THE INPUTS ARE ALSO IMPORTANT
  - DO VENDORS SUPPLY EQUIPMENT AT MODELED PRICES AND WILL CONTRACTORS INSTALL FOR MODELED COSTS?
  - IT IS CRITICALLY IMPORTANT TO GET THE INPUTS RIGHT

BCPM MODEL OVERVIEW

- Unit of Geography
- Feeder Plant Architecture
- Distribution Plant Architecture
- Structure Costs
- Switching Costs
- Capital Costs
- Expenses

Unit of Geography

Census Block Groups (CBG, Used in BCM2)

- Defined by U.S. Bureau of the Census (Publicly Available)
- 250-550 Housing Units
- Ideal Size 400 Units

Census Blocks (Basis for Grid Data Used in CPM)

- Sub-Unit of CBG
- Being Tested As Geographic Unit in BCPM

GRIDS (CPM)

- 1/100Th Degree Latitude, Longitude
- Approximately 3,000 X 3,000 Ft.
- Possible Geographic Unit in Future BCPM

Small Unit of Geography Necessary:

- Large Variation in Costs Within Wire Center
- De-Averaging More Accurately Identifies Cost
- Will Allow for More Precise Targeting of Subsidy
- Avoids Competitive Distortions Inherent in Using Higher Levels of Aggregation (e.g. Exchange or Study Area) for USF Purposes

Benchmark Cost Proxy Model 2

Assumptions: Loop Technology

- Distribution Plant - Analog Copper Technology
  - Fiber
- Analog Copper Feeder Where Loop Length Is User Selectable Input: 6,000; 9,000; 12,000; 15,000; 18,000
- Fiber Feeder For Digital Subscriber Line Carrier Where Loop Length >User Set Maximum
  - Remote Terminal At Feeder Plant End - At or in the CBG
- Two Types of Digital Loop Carrier Systems
  - Large Digital Loop Carrier (DLC-L) for Terminals Needing Capacity > 240 Lines
  - Small Digital Loop Carrier (DLC-S) for Terminals Needing Capacity < = 240 Lines
  - Both Products Utilized in Drop/Add Configurations With DLC-L Having Total Capacity of 2016 VG Channels Per 4 Fibers and DLC-S Have Total Capacity of 672 VG Channels Per 4 Fibers

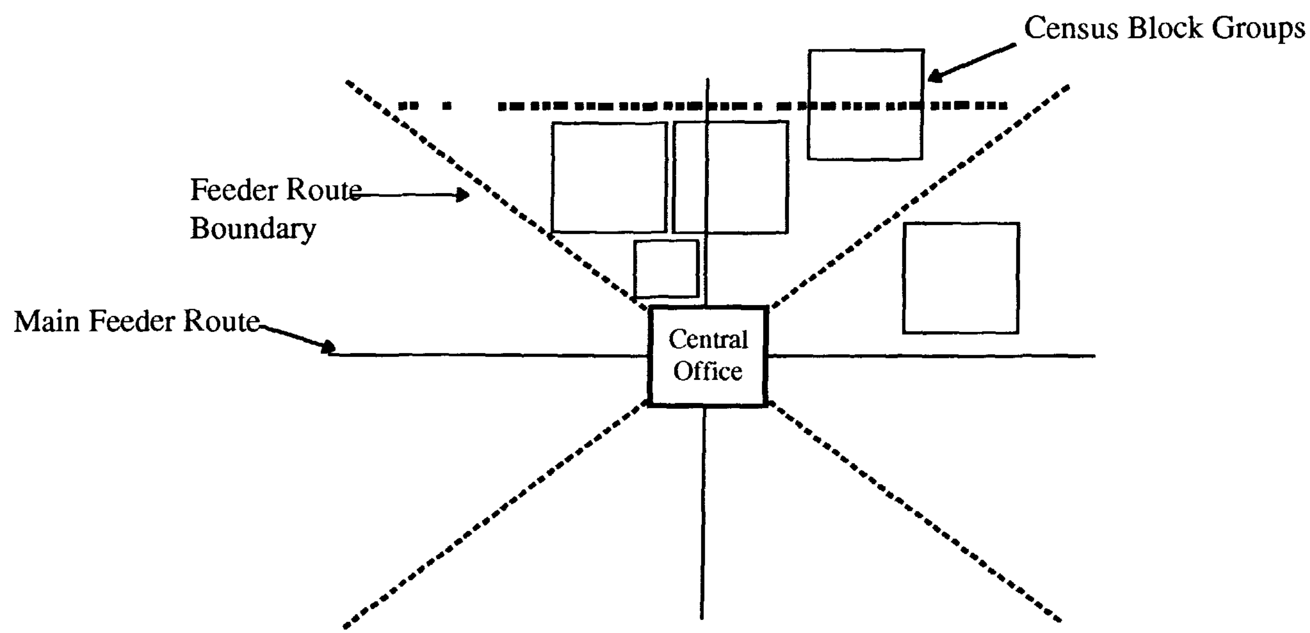
Benchmark Cost Proxy Model 2

Assumptions: Feeder Plant Architecture

- Feeder Cable Begins at CO and Extends to the Appropriate Interface Point Within the CBG
- 4 Main Feeder Routes Leave CO With Feeder Route Boundaries at 45º Angle From Main Route
- Cable and Fiber Feeder Systems Share Structure in Main Feeder Systems
- Main Feeder Routes Are Segmented at Taper Points
- Each Feeder segments Cable Size Determined by Segment Capacity
- Feeder Cable Size From 25 Pair to 4200 Pair, Fiber Cable Size From 12 Strand to 288 Strand

Benchmark Cost Proxy Model 2

Feeder Plant



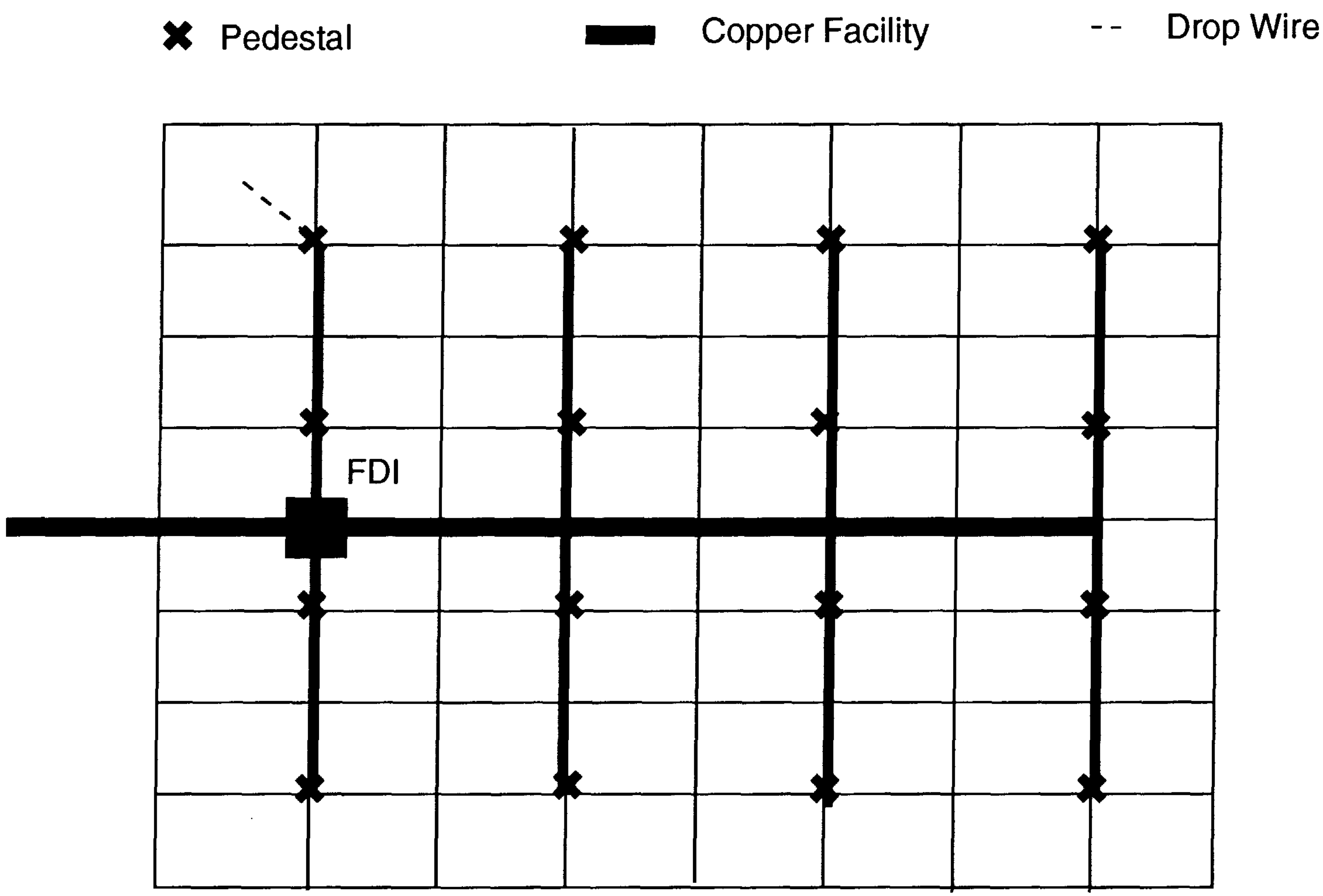
Benchmark Cost Proxy Model 2

Assumptions: Distribution Plant Architecture

- Households Are Evenly Distributed in CBG (Except in Sparsely populated CBGs)
- Distribution Cable Begins at Feeder Distribution Interface and Ends at Customer Premises
- Distribution Plant Designed to Reach All Households in CBG Through Placing of Cables Between Subdivision Lot Lines
- Copper Distribution Length Limited at User Adjustable Maximum
- Distribution Cable Size From 12 Pair to 3600 Pair
- Percentage of Business Lines Terminated at DS1 Level Signal (User Adjustable Input)
- Fiber Utilized Below Copper Distance Breakpoint in CBGs Where Line Demand Exceeds Maximum Copper Cable Size

Benchmark Cost Proxy Model 2

Distribution Plant with Copper



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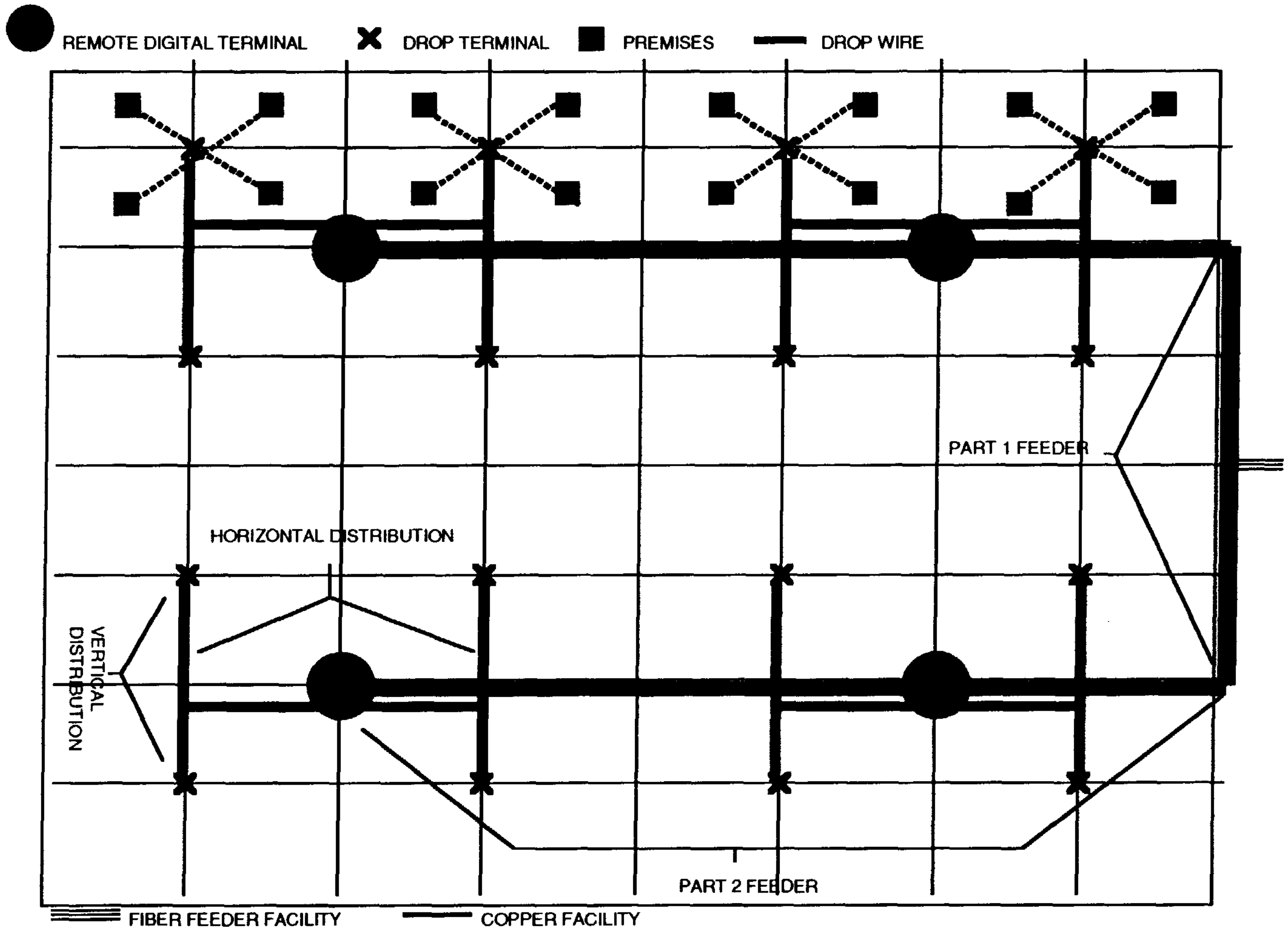
Benchmark Cost Proxy Model 2

EXAMPLE OF DISTRIBUTION PLANT WITH FIBER



Benchmark Cost Proxy Model 2

Assumptions: Density

- Density of Existing Population Determines the Construction Methods Used in Deploying Telephone Plant.

- Density of Population Determines Potential for Growth and the Future Need for Additional Capacity.

- Density of Population Influences the Mix of Underground, Buried and Aerial Plant.

Benchmark Cost Proxy Model 2

Assumptions: Terrain Placement Costs

- Placement Depths For Copper 24"; For Fiber 36" - User Adjustable Input
- Terrain Indicators Include: (Source: U.S.D.A./S.C.S.)
  - Depth to Water Table
  - Depth to Bedrock
  - Hardness of Bedrock
  - Surface Soil Texture
- Critical Water Table Depth 36" - User Adjustable
- If Water Table or Bedrock Within Placement Depth, Then Structure Costs Reflect Additional Construction
- Otherwise, Surface Texture Examined For Plowing Difficulty

Assumptions: Fill Factors

Density	Feeder	Distribution
0 to 10	75%	40%
10 to 50	80%	45%
50 to 150	80%	55%
150 to 500	85%	65%
500 to 2000	85%	75%
2000 to 5000	85%	80%
5000 plus	85%	80%

Benchmark Cost Proxy Model 2

Example of Structure Inputs

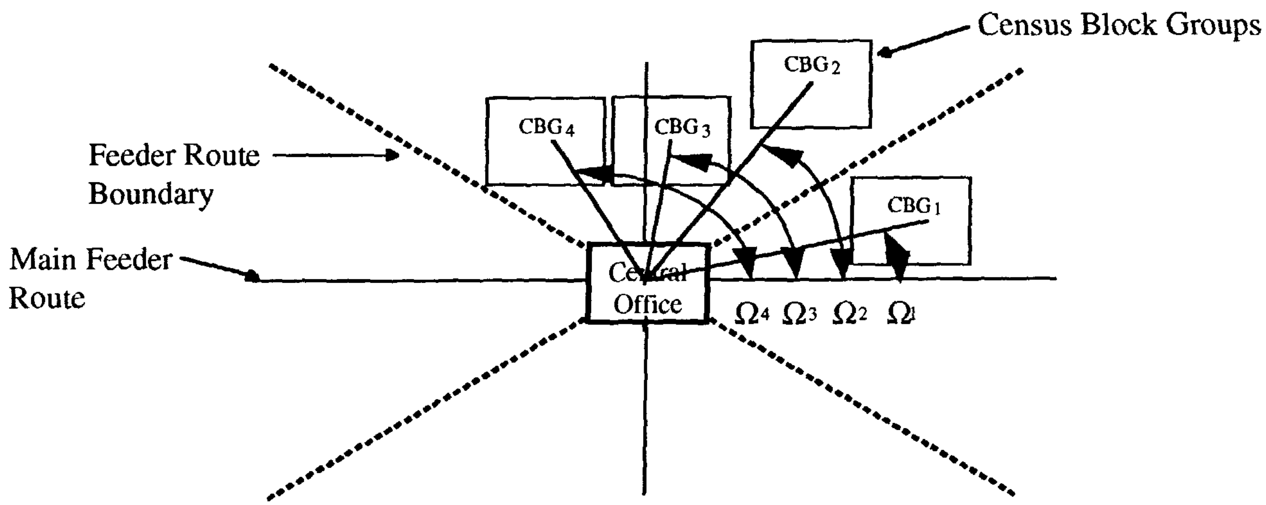
	Cost per Unit	% of Activity	% Assigned Telephone	Weighted Amount	% of Activity	% Assigned Telephone	Weighted Amount
Trench & Backfill	$ 2.69	67.00%	95.00%	$ 1.52	79.00%	80.00%	$ 1.79
Rocky Trench	$ 4.83	0.00%	95.00%	$ -	0.00%	80.00%	$ -
Backhoe Trench	$ 3.38	17.00%	95.00%	$ 0.46	5.00%	80.00%	$ 0.14
Hand Dig Trench	$ 6.00	2.00%	95.00%	$ 0.10	2.00%	80.00%	$ 0.10
Boring	$ 13.26	2.00%	95.00%	$ 0.24	2.00%	80.00%	$ 0.24
Cut & Restore Asphalt	$ 9.45	5.00%	95.00%	$ 0.44	5.00%	80.00%	$ 0.44
Cut & Restore Concrete	$ 10.30	5.00%	95.00%	$ 0.48	5.00%	80.00%	$ 0.48
Cut & Restore Sod	$ 4.41	2.00%	95.00%	$ 0.08	2.00%	100.00%	$ 0.08
Total Underground Cost per Foot		100.00%		$3.31	100.00%		$3.26

Feeder & Distribution Plant Distance

- Determination of Quadrant for Feeder Plant
- Utilizes Tree and Branch Topology
- SCS Slope Measurements Trigger Distance Adjustments
- Distribution Plant Calculations Based on Size of CBGs After Using Road Network to Reduce Size to Populated CBG Area

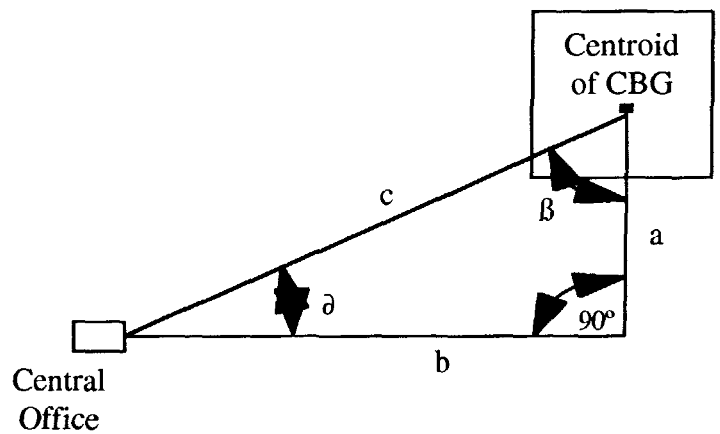
Benchmark Cost Proxy Model 2

Determination of Feeder Quadrant



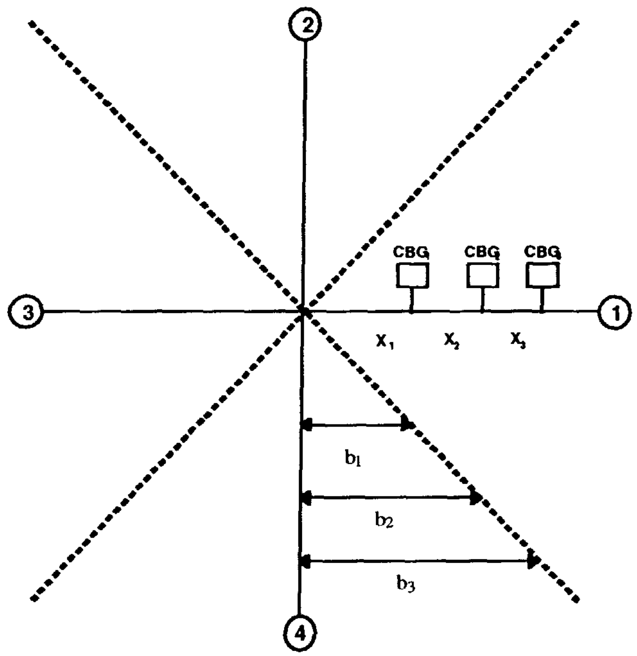
Benchmark Cost Proxy Model 2

Feeder Distance Calculation



Benchmark Cost Proxy Model 2

Shared Feeder Distance Calculation



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